

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: :  
YASHIRO ET AL. : EXAMINER: MARTIN J. ANGEBRANNDT  
SERIAL NO.: 10/776,973 :  
FILED: FEBRUARY 11, 2004 : GROUP ART UNIT: 1756

FOR: SQUARYLIUM-METAL CHELATE COMPOUNDS AND OPTICAL  
RECORDING MEDIA

DECLARATION UNDER 37 CFR 1.132

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313-1450

SIR:

Now comes Tohru YASHIRO who deposes and states:

1. That I am a graduate of Tokyo University of Science, and received a Bachelor degree in Industrial Chemistry in the year of 1985.
2. That I have been employed by Ricoh Company Limited for 21 years as a researcher in the field of Optical Disc.
3. That I am an inventor in the above-identified application.
4. That I have read and understood EP 1267338 Noguchi et al., EP 1132902 Noguchi et al. and JP 2000-343821 Kanbe et al., which have been cited against the claims in the above-identified application.
5. That none of the aforementioned cited references teach or suggest that the recording layer includes two or more different squarylium-metal chelate compounds represented by Structural Formula (1) disclosed in the specification of the subject application and at least one formazan-metal chelate compound represented by Structure Formula (4) disclosed in the specification of the subject application and that the content of the formazan-metal chelate compound in the

recording layer is from 20% by weight to 40% by weight.

6. That the optical recording medium of the present invention enables good optical properties before (initial values) and after the light resistance test, if the content of the formazan-metal chelate compound in the recording layer is from 20% by weight to 40% by weight. The reasons are set out in pages 2-4 as follow.

7. That the following additional experiment was conducted under my supervision during the period of from 2001 to 2006.

Experiment:

(Examples 7 to 11)

An optical recording medium (DVD+R medium) of Examples 7 to 11 were prepared by the procedure of Example 6, except that:

- Squarylium Compound S-6 was changed to Squarylium Compound S-2 presented in Table 1 of the present specification;
- Squarylium Compound S-7 was changed to Squarylium Compound S-13 presented in Table 2 of the present specification;
- various conditions of the content of the formazan-metal chelate compound were set as shown in Table 9; and
- the reaction was conducted at a temperature of 55°C for 10 hours.

Table 9

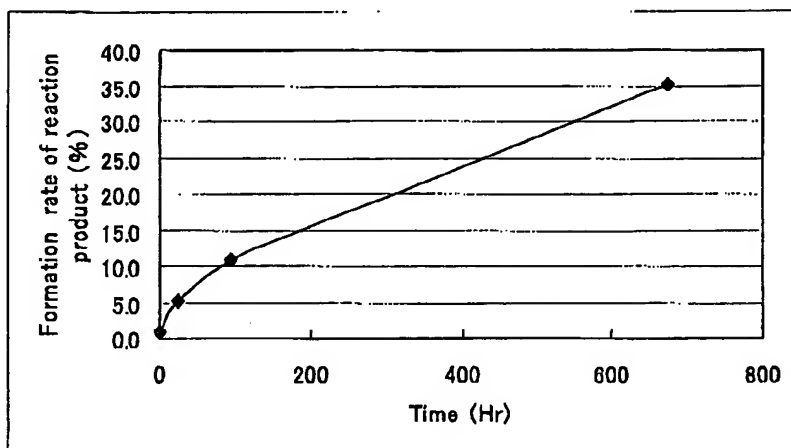
|                     | Squarylium-metal chelate compound | Formazan-metal chelate compound | Initial value        |                       |            | After light resistance test |
|---------------------|-----------------------------------|---------------------------------|----------------------|-----------------------|------------|-----------------------------|
|                     | S-2/S-13                          | F-2                             | Reflection ratio (%) | Modulation factor (%) | Jitter (%) | Jitter (%)                  |
| DVD+R specification |                                   |                                 | 45 or more           | 60 or more            | 9 or less  | 9 or less                   |
| Comp. Example 3     | 85%                               | 15%                             | 50                   | 80                    | 7.3        | 9.6                         |
| Example 7           | 80%                               | 20%                             | 48                   | 78                    | 7.5        | 9                           |
| Example 8           | 75%                               | 25%                             | 47                   | 78                    | 8          | 8.8                         |
| Example 9           | 70%                               | 30%                             | 46                   | 76                    | 8.3        | 8.8                         |
| Example 10          | 65%                               | 35%                             | 46                   | 74                    | 8.4        | 8.6                         |
| Example 11          | 60%                               | 40%                             | 45                   | 74                    | 8.8        | 8.8                         |
| Comp. Example 4     | 55%                               | 45%                             | 43                   | 72                    | 9.5        | 9.5                         |

(Comparative Examples 3 to 4)

Optical recording media (DVD+R medium) of Comparative Examples 3 to 4 were prepared by the same manner of Examples 7 to 11 as describe above, provided that the content of the formazan-metal chelate compound were set to be outside the claimed range of 20% by weight to 40% by weight, as shown in Table 9.

The reaction of two or more squarylium-metal chelate compounds progresses even at the room temperature, however it is preferable to conduct the reaction at a temperature of 55°C or higher for completion of sufficient reaction. As shown in FIG. 4 presented below, the reaction time is required to be 650 hours or more at a room temperature to obtain a sufficiently reacted product. As described above, each reaction in Examples 7 to 11 and Comparative Examples 3 to 4 was conducted at a temperature of 55°C for 10 hours to accelerate the reaction.

FIG. 4



#### Evaluations:

The above prepared optical recording media were subjected to a recording test and light resist test in the same manner as in Example 3 of the present specification.

The results are also shown in Table 9.

#### Conclusion:

As shown in Table 9, the optical recording media according to Examples 7 to 11, each of which contains the claimed range of the formazan-metal chelate compound, have good optical properties before (initial values) and after the light resistance test, which satisfy the DVD+R specification.

8. The undersigned petitioner declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

9. Further deponent saith not.

Tohru Yashiro

Tohru YASHIRO

October 26, 2006

Date